

REMARKS

Claims 1 and 4-9 remain in this application. Claims 2 and 3 have been canceled. Claims 1, 4, 6, 7, and 9 have been amended. Claims 4 and 9 have been amended to improve clarity.

The claims have been amended to positively include the related components of the engine, including the cylinder deactivation hydraulic lifters, as part of the claimed combination. This combination is not disclosed by the prior art as discussed below. In addition, the auxiliary pressure relief valve is recited as connected directly with the main oil gallery, which further distinguishes the combination. Claims 2 and 3 are canceled to reduce the issues.

In the Office Action, claims 1-9 were rejected under 35 U.S.C. 102(e) as anticipated by US 6,510,824 Vorih et al. Reconsideration is requested.

Vorih fails to disclose an engine having cylinder deactivation hydraulic lifters as required by claim 1. Vorih instead discloses a variable valve actuation system for compression-release braking that does not include cylinder deactivation hydraulic lifters as in the present system.

Vorih also fails to disclose an auxiliary pressure relief valve connected directly to a main oil gallery as required by claim 1. The bypass relief valve 714 in Vorih is part of a hydraulic fluid charging subsystem 700 for charging a hydraulic circuit at engine start up. The valve 714 is connected between a hydraulic circuit 703 and a VVA gallery 713. The valve 714 permits flow of oil from the VVA gallery 713 to the hydraulic circuit 703. The hydraulic circuit 703 receives oil from a main engine oil supply through an inlet check valve 701. Hence, the valve 714 is connected between two circuits 703, 713 of the subsystem 700 and is not connected directly to the main oil gallery of the engine. Only the inlet check valve 701 of the subsystem 700 is connected to the main oil supply, and the check valve 701 prevents flow of oil from the subsystem 700 back into the main oil supply.

Further, since the valve 714 is downstream of the check valve 701, it is not connected directly to the main oil gallery and is not in communication with the main oil gallery. Therefore, the valve 714 has no effect on the oil pressure in the main oil gallery. Instead, the valve 714 merely recirculates oil from the VVA gallery 713 to the hydraulic circuit 703 for pumping back into the VVA gallery 713 by the pump 705.

Moreover, the valve 714 is not an auxiliary relief valve of an oil pump. Valve 714 is the only relief valve for pump 705, and therefore it is not an auxiliary valve.

In contrast, the present auxiliary pressure relief valve is connected directly to the main oil gallery and vents the main oil gallery to the crankcase (and subsequently back to the engine oil sump) when there is an overpressure condition in the engine oil system (rather than in an isolated subsystem as in Vorih). The pressure relief valve thereby maintains oil pressure in the engine oil system below a certain maximum pressure, which in turn maintains oil pressure in an oil gallery controlling actuation of the deactivation lifters below a maximum allowable pressure necessary for deactivation lifter actuation.

For all of these reasons, claim 1 is not anticipated by Vorih and the rejection on this ground should be withdrawn. Withdrawal of the rejections of dependent claims 4 and 5 would also follow as a result of such action.

Similarly, the rejection of claims 6-9 as anticipated by Vorih is considered to be without basis for the reasons cited regarding claims 1 and 4-5. Vorih does not disclose an engine having cylinder deactivation hydraulic lifters or an auxiliary pressure relief valve connected directly to a main oil gallery. Accordingly, the rejection of claims 6-9 on this ground should be withdrawn.

Claims 1-9 were rejected under 35 U.S.C. 103(a) as unpatentable over US 6,510,824 Vorih et al. in view of US 6,557,518 Albertson et al. Reconsideration is requested.

Albertson is relied upon for its showing of an engine with switching valve lifters supplied with pressurized oil from an oil pump connected with a pressure control valve that controls oil pressure to the lifters under normal operating temperatures. Vorih is alleged to disclose an auxiliary pressure relief valve as that recited in claim 1 of the present application.

However, as recited above, Vorih fails to disclose an auxiliary pressure relief valve connected directly to a main oil gallery. Vorih only discloses a relief valve 714 connected between a VVA gallery 713 and a hydraulic circuit 703 in an isolated hydraulic fluid charging subsystem 700 for allowing flow from the VVA gallery to the hydraulic circuit.

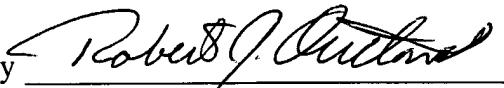
Further, there is no showing of motivation in the Vorih and Albertson disclosures for adding the relief valve of Vorih for a hydraulic fluid charging subsystem of a compression-release brake valve actuation system to the system of Albertson. The relief valve 714 of Vorih is not used for the same purpose as the auxiliary pressure relief valve of the present invention. Also, there is no motivation to include the compression-release braking system of Vorih with the cylinder deactivation apparatus of Albertson.

For all of these reasons, the rejection of claims 1 and 4-5 on the combination of Vorih and Albertson is not supported by an adequate basis and, accordingly, should be withdrawn.

Similarly, the rejection of claims 6-9 on the Vorih-Albertson combination is considered to be without basis for the reasons cited regarding claims 1 and 4-5. Neither reference suggests a reason for providing an auxiliary relief valve to further limit oil pressures in a deactivation valve lifter system and neither reference shows such a valve. Accordingly, withdrawal of the rejection of claims 6-9, as well as those of claims 1 and 4-5, is requested.

This paper is believed to be fully responsive to the issues raised in the Office Action and to place this case in condition for allowance. Favorable action is requested.

Respectfully submitted,

By 

Robert J. Outland, Attorney
Reg. No. 22,197
(313) 885-1500